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HYDROGEOLOGIC INVESTIGATION, SAAD
TROUSDALE DRIVE SITE, NASHVILLE,
DAVIDSON COUNTY, TENNESSEE

STATUS REPORT
November 3, 1994

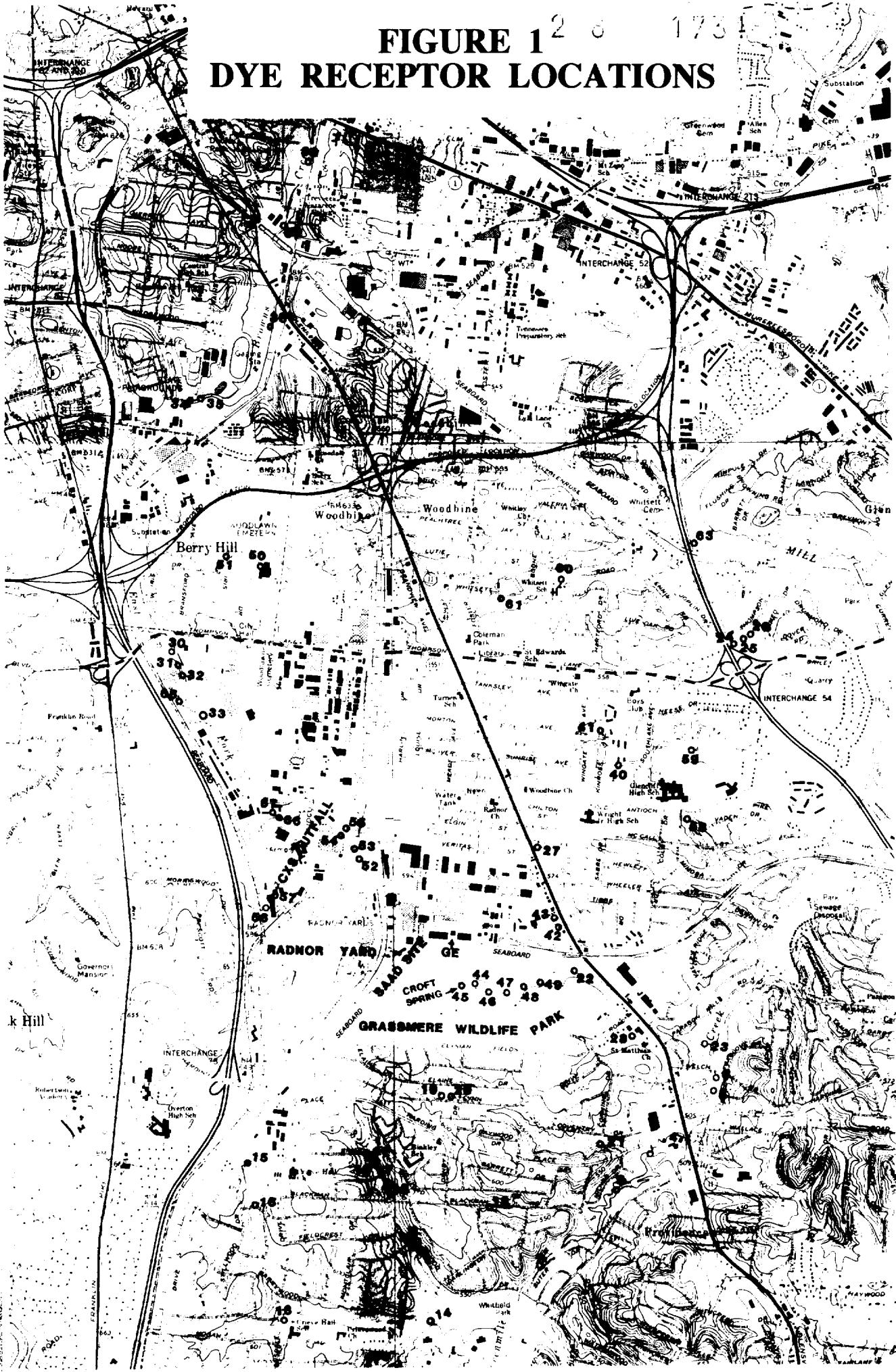
Submitted to

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Technical Assistance Team
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Louisville, KY 40299

Submitted by

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FIGURE 1²
DYE RECEPTOR LOCATIONS



**HYDROGEOLOGIC INVESTIGATION, SAAD TROUSDALE DRIVE SITE,
NASHVILLE, DAVIDSON COUNTY, TENNESSEE**

**STATUS REPORT
November 3, 1994**

Field work began on this project on August 1, 1994 with a meeting at 8:00 a.m. at the Hampton Inn, Brentwood in South Nashville. Crawford and Associates, Inc., Roy F. Weston, Inc., United States Environmental Protection Agency (USEPA), Region IV and Tennessee Division of Superfund personnel all participated in the karst hydrogeologic inventory. During the periods August 1 through 5 and August 8 through 11, Crawford and Associates, Inc. personnel accomplished the following:

- a) All streams were walked throughout the area, including Browns Creek, Seven Mill Creek, Mill Creek, and their tributaries. Passive dye receptors were placed in all springs and at selected locations along the surface streams (Figure 1).
- b) A water well investigation was made but only three accessible water wells were found in the area. The water surface elevation was measured for each well. None of the wells were close to the sites.
- c) Passive dye receptors were placed in monitoring wells, storm sewers and piezometers on Radnor Yard.
- d) A dye injection well was drilled into a void (24 to 25.4 feet below surface) which was first encountered by Law Engineering while drilling monitoring well ? 2 at the GE Service Facility.
- e) A Geoguard pressure transducer and data logger were installed at Croft Spring in Grassmere Park to maintain a continuous record of spring discharge.
- f) Applications for six dye traces in this area of Nashville were submitted to the Underground Injection Control Section of the Tennessee Division of Water. Permits were issued for all six dye traces.
- g) Capacity tests were performed on the following wells to assess their potential as dye injection wells:

EPA-1	(Radnor Yard)
CSX-1	(Radnor Yard)
P2	(Radnor Yard)
West well	(Saad Site)
East well	(Saad Site)
Dye Injection Well	(GE Service Facility)

We had planned on starting the first three dye traces on August 13 but it was decided that we should wait until 16 additional wells were installed on Radnor Yard.

On September 10, new background dye receptors were placed in all springs and wells, including the new wells on Radnor Yard. The background dye receptors were changed on September 17.

On September 18, ISCO automatic water samplers were installed at Croft Spring in Grassmere and the CSX storm water outfall (headwater for Browns Creek).

DYE INJECTION

Dye Trace 1

At 1500 on September 18, 10 pounds of Tinopal CBS-X (Optical Brightening Agent 351) were injected into the East monitoring well at the Saad Site. The well was flushed with water from a garden hose connected to a faucet at Franklin Brick Yard at a rate of 2.5 gallons per minute for a total of 300 gallons.

Dye Trace 2

At 1620 on September 18, 9 pounds of Rhodamine WT dye (Color Index: Acid Red 388) were injected into CSX-1 monitoring well near the Round House on Radnor Yard. The well was flushed at a rate of 7.5 gallons per minute for a total flush of 300 gallons. Water was obtained from a faucet about 25 feet east of the well.

Dye Trace 3

At 1535 on September 20, 3 pounds of Fluorescein dye (Color Index: Acid Yellow 73) were injected into the dye injection well at the GE Service Facility. It was flushed at a rate of 5 gallons per minute for a total flush of 500 gallons. Water was obtained from a fire hydrant located on the street about 200 feet east of the GE facility.

DYE ANALYSIS

Passive dye receptors have been changed each week and analyzed in the lab for optical brightener, Rhodamine WT, and Fluorescein.

The analytical results are presented in Tables 1 through 7. The synchronous scans from the Shimadzu Spectrofluorophotometer will be included in the final report.

Fluorescein background is high in the area and unusually high in the vicinity of Radnor Yard. No Fluorescein above background has been detected as of October 29. Fluorescein was chosen for injection into the GE dye injection well because the water table there is considerably lower than at the Saad and Radnor Yard sites.

Rhodamine WT has not been detected at any well, spring or stream dye receptor site as of October 29.

Optical brightener has only been detected in the West monitoring well on the Saad Site, located about 30 feet west of the East monitoring well (the dye injection well), as of October 29.

Although we had not injected Eosine dye (Color Index: Acid Red 87), it has been detected in the West and East monitoring wells at the Saad Site. The level was highest in the West well. The analysis of the October 6 dye receptors revealed low levels of Eosine in the Ogden Well on Radnor Yard. These levels continue to increase while those in the West

and East wells on the Saad Site continue to lower. It appears that Eosine is migrating toward the west. However, it could be flowing south while dispersing west and east.

POTENTIOMETRIC SURFACE

Plate 1 is a draft map of the water table in the vicinity of these sites. It was prepared based on water level measurements made on October 28 at monitoring wells. The water surface elevations of the important springs in the vicinity were also determined by leveling. Plate 2 shows a groundwater drainage divide in the vicinity of the "hole" on the Radnor Yard. The water table is very flat in this area, and it appears that groundwater could flow both directions. Since the water table is so flat, dye tracing will be necessary to establish groundwater flow direction. It appears that gradual flow from both the Saad East well (injection well) and CSX-1 well on Radnor Yard is to the south where it then probably turns east to flow to Croft Spring. However, it could turn west to flow into the Radnor Yard storm sewers to the outfall at the headwater of Browns Creek.

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
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0	09/24/94	Source E. Fork	1	B	520.0	7	-		-		
1	10/07/94		1	B	516.8	26.6	-		-		
1	09/17/94		1	B	513.6	4	-		-		
1	09/23/94		1	B	513.6	16	-		-		
1	09/30/94		1	B	513.6	22	-		-		
1	10/14/94		1	B	516.8	22.2	-		-		
1	10/20/94		1	-			-		-		
3	09/23/94		1	B	512.4	38	-		-		
3	09/17/94		1	B	513.6	29	-		-		
3	10/20/94		0	0			0		0		
3	09/30/94		1	B	512.0	33	-		-		
3	10/14/94		1	B	516	27.4	-		-		
3	10/07/94		0	0			0		0		
4.1	10/14/94		1	B	515.2	124.5	-		-		
4.1	09/30/94		1	B	514.4	121	-		-		
4.1	09/17/94		1	B	515.2	83	-		-		
4.1	09/23/94		1	B	515.2	105	-		-		
4.1	10/20/94		1	B	514.8	60.1	-		-		
4.1	10/07/94		1	B	515.2	51.5	-		-		
4.2	09/17/94		1	B	515.2	22	-		-		
4.2	10/14/94		1	B	515.2	96.7	-		-		
4.2	09/30/94		1	B	514.0	181	-		-		
4.2	09/23/94		1	B	515.2	81	-		-		
4.2	10/07/94		1	B	515.2	19	-		-		
4.2	10/20/94		1	B	514.8	167.2	-		-		
5.1	10/20/94		1	B	514	113	-		-		
5.1	09/23/94		1	B	513.6	12	-		-		
5.1	09/30/94		1	B	512.8	51	-		-		
5.1	10/07/94		1	B	515.6	13.1	-		-		
5.1	10/14/94		1	B	514.4	42.4	-		-		
5.1	09/17/94		1	B	513.2	15	-		-		
5.2	09/23/94		1	B	514.0	63	-		-		
5.2	10/14/94		1	B	513.6	27.7	-		-		
5.2	09/30/94		1	B	514.4	35	-		-		
5.2	09/17/94		1	B	515.6	40	-		-		
5.2	10/20/94		1	B	512.4	34.5	-		-		
5.2	10/07/94		1	B	513.2	24.5	-		-		
6.1	09/17/94		1	B	515.2	59	-		-		
6.1	09/23/94		1	B	514.4	266	-		-		
6.1	09/30/94		1	B	513.6	37	-		-		
6.1	10/14/94		1	B	514.8	39.9	-		-		

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
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6.1	10/07/94		1	B	514.8	128	-	-
6.1	10/20/94		1	B	514.0	88.1	-	-
6.2	10/20/94		1	B	514.4	33.6	-	-
6.2	10/14/94		1	-		-	-	-
6.2	09/30/94		1	B	514.0	46	-	-
7.1	10/14/94		1	-		-	-	-
7.1	09/30/94		1	B	517.2	2	-	-
7.1	10/20/94		1	-		-	-	-
7.1	09/23/94		1	-		-	-	-
7.1	09/17/94		1	B	515.6	16	-	-
7.1	10/07/94	.	1	-		-	-	-
7.2	10/07/94		1	-		-	-	-
7.2	09/17/94		1	B	510.4	6	-	-
7.2	09/23/94		1	B	518.0	4	-	-
8.1	09/23/94		1	B	513.2	6	-	-
8.1	09/30/94		1	-		-	-	-
8.1	10/20/94		1	-		-	-	-
8.1	10/14/94		1	-		-	-	-
8.1	09/17/94		1	B	514.0	12	-	-
8.1	10/07/94		1	-		-	-	-
8.2	09/17/94		1	B	510.8	6	-	-
8.2	10/07/94		1	-		-	-	-
8.2	09/30/94		1	-		-	-	-
8.2	09/23/94		1	B	514.4	9	-	-
8.2	10/20/94		1	-		-	-	-
8.2	10/14/94		1	-		-	-	-
9.1	09/30/94		1	B	511.6	26	-	-
9.1	10/14/94		1	-		-	-	-
9.1	10/07/94		1	-		-	-	-
9.1	09/23/94		1	B	517.6	20	-	-
9.1	10/20/94		1	-		-	-	-
9.1	09/17/94		1	-		-	-	-
9.2	09/17/94		1	B	515.6	11	-	-
9.2	09/23/94		1	B	519.4	7	-	-
9.2	10/14/94		1	B	515.2	11.5	-	-
9.2	09/30/94		1	B	510.8	24	-	-
9.2	10/20/94		1	-		-	-	-
9.2	10/07/94		1	-		-	-	-
10.1	09/30/94		1	-		-	-	-
10.1	10/20/94		1	-		-	-	-
10.1	10/07/94		1	-		-	-	-

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L.
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10.1	09/17/94		1	B	512.8	20	-	-	-
10.1	09/23/94		1	B	517.2	15	-	-	-
10.1	10/14/94		1	-			-	-	-
10.2	09/17/94		1	B	516.8	13	-	-	-
10.2	10/07/94		1	-			-	-	-
10.2	09/30/94		1	-			-	-	-
10.2	10/14/94		1	-			-	-	-
10.2	09/23/94		1	B	514.8	11	-	-	-
10.2	10/20/94		1	-			-	-	-
11.1	10/20/94		1	-			-	-	-
11.1	10/07/94		1	-			-	-	-
11.1	10/14/94		1	B	513.2	21.1	-	-	-
11.1	09/17/94		1	B	514.8	4	-	-	-
11.1	09/30/94		1	B	514.4	22	-	-	-
11.1	09/23/94		1	B	517.2	4	-	-	-
11.2	10/07/94		1	-			-	-	-
11.2	09/23/94		1	B	513.6	5	-	-	-
11.2	09/17/94		1	B	519.2	5	-	-	-
11.2	10/20/94		1	-			-	-	-
11.2	09/30/94		1	B	511.2	21	-	-	-
11.2	10/14/94		1	B	515	12.7	-	-	-
12.1	09/17/94		1	B	516.4	14	-	-	-
12.1	09/23/94		1	B	511.2	9	-	-	-
12.1	09/30/94		1	B	512.8	17	-	-	-
12.1	10/20/94		1	-			-	-	-
12.1	10/07/94		1	-			-	-	-
12.1	10/14/94		1	-			-	-	-
12.2	10/20/94		1	-			-	-	-
12.2	10/14/94		1	-			-	-	-
12.2	09/23/94		1	B	510.8	6	-	-	-
12.2	09/30/94		1	B	510.8	21	-	-	-
12.2	09/17/94		1	B	518.4	11	-	-	-
12.2	10/07/94	0	0			0		0	1
13.1	10/07/94	1	-			-		-	-
13.1	09/17/94	1	B	513.6	5	-			
13.1	10/14/94	1	B	516.0	8.0	-			
13.1	10/20/94	1	-			-			
13.1	09/30/94	1	-			-			
13.2	09/17/94	1	B	516.8	10	-			
13.2	10/14/94	1	B	518.8	11.1	-			
13.2	09/23/94	1	B	516.0	9	-			

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L.
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13.2	09/30/94		1	B	517.2	12	-		-
13.2	10/20/94		1	-			-		-
13.2	10/07/94		1	-			-		-
14.1	09/17/94		1	B	517.6	7	-		-
14.1	09/30/94		1	B	516.4	20	-		-
14.1	10/14/94		1	-			-		-
14.1	10/20/94		1	-			-		-
14.2	10/14/94		1	B	513.2	22	-		-
14.2	10/07/94		1	-			-		-
14.2	09/17/94		1	B	514.4	9	-		-
14.2	09/30/94		1	B	514.8	8	-		-
14.2	10/20/94		1	-			-		-
15.1	10/07/94		1	B	515.2	19	-		-
15.1	10/20/94		1	-			-		-
15.1	09/17/94		1	B	515.2	23	-		-
15.1	10/14/94		1	B	512.8	46.7	-		-
15.2	09/30/94		1	B	516.8	6	-		-
15.2	09/17/94		1	B	513.2	29	-		-
15.2	10/20/94		1	B	512.4	512.4	-		-
15.2	10/07/94		1	B	512.8	48	-		-
15.2	10/14/94		1	B	514.4	42.5	-		-
15.2	09/23/94		1	B	515.6	23	-		-
16.1	09/30/94		1	B	514.0	16	-		-
16.1	10/14/94		1	B	514	23.8	-		-
16.1	10/20/94		1	B	512.4	37.6	-		-
16.1	10/07/94		1	B	515.6	20.9	-		-
16.1	09/17/94		1	B	514.0	20	-		-
16.1	09/23/94		1	B	515.2	13	-		-
16.2	09/30/94		1	B	514.0	24	-		-
16.2	10/20/94		1	B	512.4	14.7	-		-
16.2	10/07/94		1	B	516.4	8.7	-		-
16.2	10/14/94		1	B	514.0	30.7	-		-
16.2	09/23/94		1	B	516.0	11	-		-
16.2	09/17/94		1	B	513.6	9	-		-
17.1	10/07/94		1	-			-		-
17.1	09/17/94		1	B	515.2	10	-		-
17.1	10/20/94		1	-			-		-
17.1	09/30/94		1	B	513.2	37	-		-
17.1	10/14/94		1	B	517.2	33.9	-		-
17.1	09/23/94		1	B	514.0	23	-		-
17.2	10/20/94		1	-			-		-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L.
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17.2	09/30/94		1	B	510.8	33	-		-
17.2	09/17/94		1	B	510.4	18	-		-
17.2	10/07/94		1	-			-		-
17.2	09/23/94		1	B	514.8	18	-		-
17.2	10/14/94		1	B	512.4	43.3	-		-
18	10/07/94		1	-			-		-
18	10/14/94		1	B	512.4	23.7	-		-
18	10/20/94		1	-			-		-
18	09/17/94		1	B	517.6	23	-		-
18	09/30/94		1	B	513.6	37	-		-
19	09/30/94		1	B	516.4	13	-		-
19	09/23/94		1	B	515.2	2	-		-
19	10/20/94		1	-			-		-
19	10/07/94		1	-			-		-
19	10/14/94		1	-			-		-
19	09/17/94		1	B	514.0	3	-		-
20	10/14/94		1	-			-		-
20	09/17/94		1	B	515.2	2	-		-
20	09/23/94		1	B	516.0	4	-		-
20	10/07/94		1	-			-		-
20	09/30/94		1	-			-		-
20	10/20/94		1	-			-		-
21	10/20/94		1	B	516	15.4	-		-
21	09/30/94		1	B	515.2	26	-		-
21	10/14/94		1	-			-		-
21	09/23/94		1	B	514.0	26	-		-
21	09/17/94		1	B	513.2	12	-		-
21	10/07/94		0	0		0		0	
22	10/07/94		1	B	513.6	21.8	-		-
22	10/20/94		1	B	517.6	26	-		-
22	09/30/94		1	B	514.4	41	-		-
22	09/17/94		1	B	514.8	41	-		-
22	10/14/94		1	B	513.6	64.9	-		-
22	09/23/94		1	B	514.8	35	-		-
23	09/17/94		1	B	516.0	49	-		-
23	09/30/94		1	B	514.8	61	-		-
23	10/14/94		1	B	514.8	75.9	-		-
23	09/23/94		1	B	514.8	66	-		-
23	10/20/94		1	B	514	71.8	-		-
23	10/07/94		1	B	513.2	53.3	-		-
24	10/15/94		1	B	513.6	44.2	-		-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L
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24	10/01/94		1	-				
24	10/07/94		1	B	514.0	52	-	-
24	10/22/94		0	0			0	0
24	09/24/94		1	B	513.6	23	-	-
25	10/22/94		1	-			-	-
25	10/15/94		0	0			0	-
25	10/01/94		1	B	512.8	25	-	-
25	09/24/94		1	B	516.0	22	-	-
25	10/07/94		1	B	515.2	19	-	-
25	09/17/94		1	B	512.4	13	-	-
26	09/24/94		1	B	517.2	17	-	-
26	09/17/94		1	B	513.2	6	-	-
26	10/22/94		1	-			-	-
26	10/01/94		1	B	514.8	9	-	-
26	10/07/94		0	0			0	0
26	10/15/94		1	B	513.6	30.2	-	-
27	09/30/94		1	B	514.8	61	-	-
27	10/14/94		1	B	515.2	241.9	-	-
27	10/20/94		1	B	515.6	149.6	-	-
27	09/17/94		1	B	515.2	141	-	-
27	10/07/94		1	B	515.2	102.1	-	-
27	09/23/94		1	B	514.0	58	-	-
28	09/23/94		1	B	515.6	30	-	-
28	10/07/94		0	0			0	0
28	10/20/94		1	-			-	-
28	09/30/94		1	B	512.0	20	-	-
28	10/14/94		1	-			-	-
30	10/07/94		0	0			0	0
30.1	09/17/94		1	B	512.4	11	-	-
30	10/01/94		1	B	515.2	692	-	-
30	10/15/94		1	B	508.4	2140	-	-
30	09/17/94		1	B	515.0	1000+	-	-
30	10/22/94		1*	B	509.2	2020	-	-
31	10/15/94		1	B	514	10	-	-
31	10/22/94		1	-			-	-
31	10/01/94		1	B	516.0	5	-	-
31	10/07/94		1	B	514.8	141	-	-
31	09/24/94		1	B	516.4	12	-	-
31	09/17/94		1	B	516.0	4	-	-
32	10/15/94		1	B	516	310	-	-
32	09/24/94		1	B	514.8	133	-	-

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
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32	09/17/94		1	B	515.2	2	-					-	
32	10/07/94		0	0			0					0	
32	10/22/94		1	B	516.0	151.1	-					-	
32	10/01/94		1	B	517.2	12	-					-	
33	10/22/94		1	B	514.4	29.3	-					-	
33	10/01/94		1	B	515.6	33	-					-	
33	10/15/94		1	B	514.4	77	-					-	
33	10/07/94		1	B	514.0	77	-					-	
33	09/17/94		1	B	516.0	11	-					-	
33	09/24/94		1	B	515.6	58	-					-	
34.1	09/17/94		1	B	513.6	13	-					-	
34.1	10/07/94		1	B	514.8	61	-					-	
34.1	09/24/94		1	B	514.0	26	-					-	
34.1	10/22/94		1	B	515	21	-					-	
34.1	10/01/94		1	B	514.4	25	-					-	
34.1	10/15/94		1	B	514.4	48.7	-					-	
34.2	09/24/94		1	B	514.8	25	-					-	
34.2	10/01/94		1	B	514.4	40	-					-	
34.2	10/15/94		1	B	514.8	110	-					-	
35	09/17/94		1	B	515.2	15	-					-	
35	10/07/94		1	B	515.2	27	-					-	
35	10/01/94		1	B	515.2	15	-					-	
35	10/22/94		1	B	514.4	14	-					-	
35	09/24/94		1	B	515.6	20	-					-	
35	10/15/94		1	B	513.2	29.3	-					-	
36	09/17/94		1	B	515.6	27	-					-	
36	09/24/94		1	B	515.2	54	-					-	
36	10/01/94		1	B	514.4	70	-					-	
36	10/07/94		1	B	514.8	81	-					-	
36	10/22/94		1	B	514.8	75.8	-					-	
36	10/15/94		1	B	514.4	99.5	-					+/?	
37	10/15/94		1	B	513.2	27.3	-					-	
37	10/22/94		1	B	516	15.9	-					-	
37	09/17/94		1	B	515.2	7	-					-	
37	10/01/94		1	B	516.4	10	-					-	
37	09/24/94		1	B	514.4	32	-					-	
37	10/07/94		0	0			0					0	
38	10/07/94		0	0			0					0	
38	10/22/94		1	B	514.8	47.4	-					-	
38	10/01/94		1	B	514.0	20	-					-	
38	09/17/94		1	B	512.8	30	-					-	

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	UV
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38	10/15/94		1	B	514.	41.3	-		+/?
38	09/24/94		1	B	514.4	36	-		-
39	09/17/94		1	B	516.8	1	-		-
40	10/07/94		0	0			0		0
40	10/01/94		1	B	510.4	12	-		-
40	10/15/94		1	-			-		-
40	09/17/94		1	B	513.6	11	-		-
40	09/24/94		1	B	515.2	7	-		-
40	10/22/94		1	-			-		-
41	10/22/94		1	-			-		-
41	10/15/94		1	-			-		-
41	09/17/94		1	B	520.0	17	-		-
41	10/07/94		1	-			-		-
41	10/01/94		1	B	512.0	17	-		-
41	09/24/94		1	B	510.4	18	-		-
42	10/07/94		1	B	514.4	24.5	-		-
42	10/20/94		1	-			-		-
42	09/17/94		1	B	513.6	23	-		-
42	10/14/94		0	0		0			0
42	09/23/94		1	B	518.4	3	-		-
42	09/30/94		1	B	514.0	42	-		-
43	09/30/94		1	B	514.8	14	-		-
43	10/07/94		1	-			-		-
43	09/23/94		1	B	516.0	11	-		-
43	10/14/94		1	B	515.2	31.2	-		-
43	10/20/94		1	-			-		-
43	09/17/94		1	B	517.2	5	-		-
44	09/30/94		1	B	514.4	587	-		-
44	09/23/94		1	B	514.8	987	-		-
44	10/14/94		1	B	514.8	1004	-		-
44	10/07/94		1	B	508.8	151*	-		-
44	09/17/94		1	B	515.2	581	-		-
44	10/20/94		1	B	514.8	566.3	-		-
45.1	09/17/94		1	B	515.2	600	-		-
45.1	09/23/94		1	B	514.8	767	-		-
45.1	10/20/94		1	B	514.4	471.7	-		-
45.1	10/14/94		1	B	514.8	600.7	-		-
45.1	09/30/94		1	B	516.0	1028	-		-
45.1	10/07/94		1	B	5155	1027	-		-
45.2	09/17/94		1	B	515.2	931	-		-
45.2	09/30/94		1	B	514.4	681	-		-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
45.2	09/23/94		1	B	514.8	612	-	-
45.2	10/07/94		1	B	514.8	823.7	-	-
45.2	10/14/94		1	B	514.8	407.9	-	-
45.2	10/20/94		1	B	514.8	372.3	-	-
45.2	09/23/94		1	B	517.6	1021	-	-
46	10/07/94		1	-		-	-	-
46	10/14/94		1	B	514.4	11.9	-	-
46	09/30/94		1	B	513.2	6	-	-
46	10/20/94		1	-		-	-	-
47	09/23/94		1	B	516.0	9	-	-
47	10/07/94		1	-		-	-	-
47	10/14/94		1	B	514	6.7	-	-
47	09/17/94		1	B	515.6	12	-	-
47	09/30/94		1	B	517.2	5	-	-
47	10/20/94		1	-		-	-	-
48	09/30/94		1	B	516.0	7	-	-
48	10/20/94		1	-		-	-	-
48	09/23/94		1	B	516.8	2	-	-
48	09/17/94		1	B	516.0	4	-	-
48	10/14/94		1	-		-	-	-
48	10/07/94		1	-		-	-	-
49	10/07/94		1	-		-	-	-
49	09/17/94		1	B	516.8	3	-	-
49	09/23/94		1	B	513.2	3	-	-
49	10/20/94		1	-		-	-	-
49	10/14/94		1	B	515.2	5.9	-	-
49	09/30/94		1	B	516.8	7	-	-
50	09/24/94		1	B	516.0	6	-	-
50	09/18/94	Woodlawn Mos.	1	B	516.8	8	-	-
50	10/15/94		1	-		-	-	-
50	10/22/94		1	-		-	-	-
50	10/01/94		1	B	516.0	4	-	-
50	10/07/94		1	B	514.8	6	-	-
51.1	09/18/94	Woodlawn Spring	1	B	518.0	4	-	-
51.2	09/18/94	Woodlawn Spring	1	B	513.6	4	-	-
51	09/24/94		1	B	520.0	3	-	-
51	10/22/94		1	-		-	-	-
51	10/07/94		1	-		-	-	-
51	10/15/94		1	-		-	-	-
51	10/01/94		1	-		-	-	-
52	10/06/94		1	B	514.8	31	-	-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L.
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52	09/17/94		1	B	515.6	29	-	-
52	09/30/94		1	B	507.2	3900**	-	-
52	10/22/94	Weedy Sp.	1	-			-	-
52	09/24/94		1	B	509.6	51	-	-
52	10/14/94	Weedy Sp.	1	-			-	-
53	10/22/94	Yellow Sp.	1	B	514.4	151	-	-
53	10/14/94	Yellow Sp.	1	B	514.4	514.4	-	-
53	10/06/94		1	B	514.8	74	-	-
53	09/24/94		1	B	514.8	90	-	-
53	09/17/94		1	B	514.0	108	-	-
53	09/30/94		1	B	514.4	95	-	-
54	10/14/94	West Culvert	1	B	515.6	68.2	-	-
54	09/17/94	West Culvert	1	B	513.6	15	-	-
54	10/06/94	West Culvert	1	B	516.8	25	-	-
54	09/24/94	West Culvert	1	B	515.6	13	-	-
54	09/30/94	West Culvert	1	B	516.8	95	-	-
54	10/22/94	West Culvert	1	B	516.6	40.9	-	-
55	09/24/94	East Culvert	1	B	516.0	17	-	-
55	10/06/94	East Culvert	0	0		0		0
55	10/22/94	East Culvert	1	B	513.6	23.8	-	-
55	10/14/94	East Culvert	1	B	512.4	49.5	-	-
55	09/17/94	East Culvert	1	B	514.8	17	-	-
55	09/30/94	East Culvert	1	B	512.8	17	-	-
56	10/22/94		1	-			-	-
56	10/15/94		1	-			-	-
56	10/07/94		0	0		0		0
56	09/24/94		1	B	516.8	8	-	-
56	09/17/94		1	B	520.8	8	-	-
56	10/01/94		1	B	513.6	16	-	-
57	09/24/94		1	B	514.4	730	-	-
57	09/17/94		1	B	515.2	568	-	-
57	10/07/94		1	B	508.0*	192	-	-
57	10/01/94		1	B	516.8	1027	-	-
57	10/22/94		1	B	514.4	690.3	-	-
57	10/15/94		1	B	508.8	2873	-	-
58	10/01/94		1	B	515.6	5	-	-
58	10/15/94		1	B	513.6	16	-	-
58	10/07/94		0	0		0		0
58	10/22/94		1	B	514.4	690.3	-	-
58	09/17/94		1	B	518.8	1	-	-
58	09/24/94		1	B	516.0	8	-	-

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
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59	10/22/94		1	B	514.4	21.6	-		-		
59	10/07/94		1	B	514.0	26	-		-		
59	10/15/94		1	B	512.8	22	-		-		
59	10/01/94		1	B	514.8	32	-		-		
60	09/17/94		1	B	514.4	22	-		-		
60	09/24/94		1	B	514.4	23	-		-		
60	10/01/94		1	B	512.8	16	-		-		
60	10/22/94		1	-			-		-		
60	10/15/94		1	-			-		-		
60	10/07/94		0	0			0		0		
61.1	09/17/94		1	B	515.6	31	-		-		
61.1	10/07/94		1	B	513.6	45	-		-		
61.1	10/15/94		1	B	515.2	59	-		-		
61.1	09/24/94		1	B	515.2	47	-		-		
61.1	10/01/94		1	B	514.4	51	-		-		
61.1	10/22/94		1	B	514.4	26.1	-		-		
61.2	10/22/94		1	B	514.4	83.6	-		-		
63	10/07/95		1	B	517.3	5	-		-		
63	10/01/94		1	B	519.2	19	-		-		
63	09/17/94		1	B	518.0	6	-		-		
63	09/24/94		1	B	514.4	16	-		-		
63	10/15/94		1	B	513.6	31	-		-		
66	10/01/94		1	B	514.0	69	-		-		
66	10/15/94		1	B	513.6	40	-		-		
66	09/17/94		1	B	513.6	39	-		-		
66	10/07/94		1	B	514.4	34	-		-		
66	10/22/94		1	B	514.8	41.4	-		-		
66	09/24/94		1	B	512.4	16	-		-		
67	10/15/94		1	B	513.6	37	-		-		
67	09/17/94		1	B	517.2	8	-		-		
67	10/07/94		1	B	514.8	39	-		-		
67	09/24/94		1	B	514.0	14	-		-		
67	10/22/94		1	-			-		-		
67	10/01/94		1	B	515.6	43	-		-		
68	10/15/94		1	-			-		-		
68	10/22/94		1	-			-		-		
68	10/07/94		1	B	512.0	22	-		-		
68	09/24/94		1	B	516.0	22	-		-		
68	10/01/94		1	B	514.0	24	-		-		
68	09/17/94		1	B	514.0	36	-		-		
69	10/22/94	CSX-1	0	0			0		0		

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NUMBER DATE LOCATION ELUANT FLUORESCEIN RHODAMINE WT EOSINE OB ✓

69	09/24/94	CSX-1	1	-			++	573.2	673				-
69	09/17/94	CSX-1	1	-			-						-
69	10/14/94	CSX-1	1 ***	-			+++	572.8	91000				-
69	09/30/94	CSX-1	1	B	514.8	2	-	568.8	3 ***				-
69	10/06/94	CSX-1	0	0			0						0
70	10/06/94	P1	1	-			-						-
70	09/30/94	P1	1	B	516.4	5	-						-
70	09/17/94	P1	1	B	516.0	8	-						-
70	09/24/94	P1	1	B	514.8	4	-						-
70	10/14/94	P1	1	-			-						-
70	10/22/94	P1	1	-			-						-
71	10/14/94	P2	1	-			-						-
71	09/17/94	P2	1	B	514.4	1	-						-
71	09/30/94	P2	1	B	518.8	1	-						-
71	10/22/94	P2	0	0			0						0
71	10/06/94	P2	1	-			-						-
71	09/24/94	P2	1	B	515.2	2	-						-
72	09/24/94	EPA-1	1	B	514.4	286	-						-
72	09/17/94	EPA-1	1	B	518.0	2	-						-
72	09/30/94	EPA-1	1	B	514.0	527	-						-
72	10/14/94	EPA-1	1	B	514.4	557.9	-						-
72	09/17/94	EPA-1	1	B	514.4	175	-						-
72	10/06/94	EPA-1	1	B	514.8	58	-						-
72	10/22/94	EPA-1	1	B	514	477.7	-						-
73	10/22/94	Treatment plant 1	1*	B	508.4	6180	-						-
73	09/17/94	Treatment plant 1	1	B	514.8	820	-						-
73	09/30/94	Treatment plant 1	1	B	515.6	2	-						-
73	09/24/94	Treatment plant 1	1	B	516.0	17	-						-
73	10/06/94	Treatment plant 1	1	B	518.4	2	-						-
73	10/14/94	Treatment plant 1	1	B	514.8	585.1	-						-
74	10/06/94	Treatment plant 2	1	B	508.8	549*	-						-
74	10/22/94	Treatment plant 2	0	0			0						0
74	09/24/94	Treatment plant 2	1	B	507.6	4400	-						-
74	10/14/94	Treatment plant 2	1 *	B	508.8	762.6	-						-
74	09/17/94	Treatment plant 2	1	B	508.0	2100	-						-
74	09/30/94	Treatment plant 2	1	B	507.6	5600**	-						-
75	09/17/94	P3	1	B	512.8	2	-						-
75	10/22/94	P3	1	-			-						-
75	09/30/94	P3	1	-			-						-
75	10/14/94	P3	1	-			-						-
75	09/24/94	P3	1	B	513.2	2	-						-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
75	10/06/94	P3	1	-	-	-	-	-
76	10/14/94	P4	1	-	-	-	-	-
76	10/06/94	P4	1	-	-	-	-	-
76	10/22/94	P4	1	-	-	-	-	-
76	09/24/94	P4	1	B 514.8	1	-	-	-
76	09/17/94	P4	1	B 517.6	1	-	-	-
76	09/30/94	P4	1	B 513.2	1	-	-	-
77	09/30/94	P5	1	-	-	-	-	-
77	10/14/94	P5	1	-	-	-	-	-
77	09/17/94	P5	1	B 514.4	2	-	-	-
77	09/24/94	P5	1	B 516.4	2	-	-	-
77	10/22/94	P5	1	-	-	-	-	-
77	10/06/94	P5	1	-	-	-	-	-
78	09/17/94	P6	1	B 516.8	2	-	-	-
78	10/14/94	P6	1	-	-	-	-	-
78	09/30/94	P6	1	B 514.4	1	-	-	-
78	09/24/94	P6	1	B 514.4	2	-	-	-
78	10/06/94	P6	1	-	-	-	-	-
78	10/22/94	P6	1	-	-	-	-	-
79	10/06/94	P5 Sewer	1	B 508.4	438*	-	-	-
79	10/14/94	P5 Sewer	1	B 509.2	560	-	-	-
79	09/17/94	P5 Sewer	1	B 514.0	830	-	-	-
79	09/24/94	P5 Sewer	1	B 507.2	41	-	-	-
79	09/30/94	P5 Sewer	1	-	-	-	-	-
79	10/22/94	P5 Sewer	1*	B 508	1330	-	-	-
80	09/17/94	AST-6	1	B 516.8	2	-	-	-
80	10/14/94	AST-6	1	B 514.4	377.4	-	-	-
80	10/22/94	AST-6	1	B 514.4	387.3	-	-	-
81	10/22/94	Well under lines	1	B 516.4	11.2	-	-	-
81	10/15/94	Well under lines	1	B 514.0	13.1	-	-	-
81	10/07/94	Well under lines	1	B 514.8	8	-	-	-
81	09/18/94	well under lines	1	B 514.8	14	-	-	-
81	09/24/94	well under lines	1	B 515.2	13	-	-	-
81	10/01/94	well under lines	1	B 515.6	18	-	-	-
82	09/24/94	Ogden Well	1	B 514.4	127	-	-	-
82	10/14/94	Ogden Well	1	B 515.2	282.9	-	536.8	212.9
82	09/17/94	Ogden Well	1	B 514.0	176	-	-	-
82	10/06/94	Ogden Well	1	-	-	-	538.8	49
82	09/30/94	Ogden Well	1	B 515.2	247	-	-	-
82	10/22/94	Ogden Well	1	B 516	309	-	536	253.6
83	10/22/94	Tower Sewer	1	-	-	-	-	-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN		RHODAMINE WT		EOSINE		OB	L
83	10/06/94	Tower Sewer	1	B	514.0	26	-			-	
83	10/14/94	Tower Sewer	0	0			0			0	
83	09/24/94	Tower Sewer	1	B	512.8	26	-			-	
83	09/30/94	Tower Sewer	1	B	514.0	46	-			-	
83	09/17/94	Tower Sewer	1	B	511.6	43	-			-	
84	10/22/94	Site Well	1	-			-		B	536.4	390.9
84	10/15/94	Site Well	1	-			-			536.4	469.3
84	09/18/94	Site Well	1	-			-			536.4	1215
84	09/24/94	Site Well	1	-			-			536.4	194
85	09/18/94	OB Injection well	1	-			-			536.0	87
85	10/22/94	OB Injection Well	1	B	514.8	26.5	-			535.6	18.6
86	10/15/94	Bent Well	1	-			-				-
86	10/07/94	Bent Well	1	B	515.2	3	-				-
86	10/01/94	Bent Well	1	B	512.8	7	-				-
86	09/24/94	Bent Well	1	B	517.6	4	-				-
101.1	09/30/94	1S	1	B	518.0	2	-				-
101.1	09/17/94	1S	1	B	515.2	2	-				-
101.1	10/06/94	1S	1	-			-				-
101.1	10/22/94	1S	1	-			-				-
101.1	09/24/94	1S	1	B	516.8	2	-				-
101.1	10/14/94	1S	1	-			-				-
101.2	10/06/94	1D	1	-			-				-
101.2	10/22/94	1D	1	-			-				-
101.2	10/14/94	1D	1	-			-				-
101.2	09/17/94	1D	1	B	517.6	2	-				-
101.2	09/24/94	1D	1	B	514.0	3	-				-
101.2	09/30/94	1D	1	B	514.8	1	-				-
102.1	09/17/94	2S	1	B	518.0	2	-				-
102.1	10/22/94	2S	1	B	515.2	10.4	-				-
102.1	09/30/94	2S	1	B	514.4	1	-				-
102.1	09/24/94	2S	1	B	518.4	1	-				-
102.1	10/14/94	2S	1	B	515.2	488.1	-				-
102.1	10/06/94	2S	1	-			-				-
102.2	09/30/94	2D	1	B	508.0	2900**	-				-
102.2	10/14/94	2D	1*	B	509.6	438.8	-				-
102.2	09/24/94	2D	1	B	508.0	32	-				-
102.2	10/06/94	2D	1	B	515.0	1000+	-				-
102.2	09/17/94	2D	1	B	507.6	9400	-				-
102.2	10/22/94	2D	1*	B	508	6340	-				-
103.1	10/06/94	3S	1	-			-				-
103.1	09/17/94	3S	1	B	512.8	1	-				-

NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	L
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103.1	10/22/94	3S	1	-				-
103.1	10/14/94	3S	1	-				-
103.1	09/30/94	3S	1	B	515.6	23	-	-
103.1	09/24/94	3S	1	B	515.6	2	-	-
103.2	09/30/94	3D	1	B	513.2	29	-	-
103.2	10/14/94	3D	1	B	514.4	10.8	-	-
103.2	09/17/94	3D	1	B	514.8	58	-	-
103.2	10/22/94	3D	1	B	514.8	22.2	-	-
103.2	09/24/94	3D	1	B	514.8	62	-	-
103.2	10/06/94	3D	1	-		-		-
104.1	10/06/94	4S	1	-		-		-
104.1	09/30/94	4S	1	B	514.4	1	-	-
104.1	09/17/94	4S	1	B	516.4	1	-	-
104.1	10/14/94	4S	1	-		-		-
104.1	10/22/94	4S	1	-		-		-
104.1	09/24/94	4S	1	B	512.4	2	-	-
104.2	10/22/94	4D	1	-		-		-
104.2	10/06/94	4D	1	-		-		-
104.2	09/24/94	4D	1	B	511.6	5	-	-
104.2	10/14/94	4D	1	-		-		-
104.2	09/30/94	4D	1	B	517.8	1	-	-
104.2	09/17/94	4D	1	B	518.4	2	-	-
105.2	09/24/94	5D	1	B	514.4	52	-	-
105.2	09/17/94	5D	1	B	514.0	65	-	-
105.2	10/14/94	5D	1	B	514.8	246.6	-	-
105.2	10/22/94	5D	1	B	514.4	87.8	-	-
105.2	09/30/94	5D	1	B	514.4	48	-	-
105.2	10/06/94	5D	1	B	514.4	40	-	-
106.1	09/24/94	6S	1	B	514.8	2	-	-
106.1	10/22/94	6S	1	-		-		-
106.1	09/30/94	6S	1	B	514.4	1	-	-
106.1	10/14/94	6S	1	-		-		-
106.1	10/06/94	6S	1	-		-		-
107.2	10/06/94	7D	1	-		-		-
107.2	09/17/94	7D	1	B	511.6	1	-	-
107.2	10/14/94	7D	1	-		-		-
107.2	09/30/94	7D	1	B	515.2	1	-	-
107.2	10/22/94	7D	1	-		-		-
107.2	09/24/94	7D	1	B	510.4	1	-	-
108.1	09/30/94	8S	1	-		-		-
108.1	10/22/94	8S	1	-		-		-

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NUMBER	DATE	LOCATION	ELUANT	FLUORESCEIN	RHODAMINE WT	EOSINE	OB	DY
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108.1	10/14/94	8S	1	-				-
108.1	09/24/94	8S	1	B	517.2	2	-	-
108.1	10/06/94	8S	1	-				-
109.2	09/17/94	9D	1	B	515.2	2	-	-
109.2	10/22/94	9D	1	-				-
109.2	10/14/94	9D	1	-				-
109.2	10/06/94	9D	1	-				-
109.2	09/30/94	9D	1	B	514.4	1	-	-
109.2	09/24/94	9D	1	B	518.0	1	-	-
110.1	09/30/94	10S	1	B	517.6	1	-	-
110.1	10/22/94	10S	1	-				-
110.1	09/24/94	10S	1	B	514.0	3	-	-
110.1	10/06/94	10S	1	-				-
110.1	10/14/94	10S	1	-				-
110.1	09/17/94	10S	1	B	515.2	2	-	-
111.1	10/14/94	10S	1	-				-
111.1	10/22/94	11S	1	-				-
111.1	09/30/94	11S	1	B	512.8	2	-	-
111.1	09/24/94	11S	1	B	514.0	33	-	-
111.1	09/17/94	11S	1	B	514.8	3	-	-
111.1	10/06/94	11S	1	-				-

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